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EXAMINER	
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ART UNIT	PAPER NUMBER
2171	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/660,536	RUI, YONG	
	Examiner	Art Unit	
	Brian Goddard	2171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 September 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30,32-38,40-44 and 46-66* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30,32-38,40-44 and 46-66* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 September 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This communication is responsive to Amendment B, filed 05 September 2003.

2. Claims 1-30, 32-38, 40-44 and 46-66 are pending in this application. Claims 1, 8, 11, 19, 23, 30, 32, 41, 46, 48, 50, 55, 57 and 60 are independent claims. In Amendment B, claims 57-66 were added, and claims 8, 32, 35 and 55 were amended. This action is made Final.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 8-9, 32, 35-38, 40-44, 48-51 and 57 are rejected under 35 U.S.C. 102(b) as being anticipated by the article entitled "Relevance Feedback Techniques in Interactive Content-Based Image Retrieval" by Rui et al. (hereinafter "RFT")

Referring to claim 1, RFT discloses the invention exactly as claimed. See sections 3 and 4 on pages 4-8 of the article for this disclosure. Refer specifically to the method on page 4 and Figure 2 for the details of this disclosure. In particular, RFT teaches "one or more computer readable media having stored thereon a plurality of instructions [See section 4] that, when executed by one or more processors, causes the one or more processors to perform acts including:

receiving [Step 2] an initial image [query object Q] selection;

generating [Steps 2-3] a plurality of query vectors [Q's feature vectors f] by extracting, for each query vector, one of a plurality of low-level features [representations r] from the initial image selection [See Figure 2];

selecting [Steps 4-7] a set of potentially relevant images [most similar objects] based at least in part on distances [$S(f_i)$] between the plurality of query vectors [Q's feature vectors f] and a plurality of feature vectors [O's feature vectors f] corresponding to low-level features of a plurality of images [See Figure 2];

receiving feedback [Step 8] regarding the relevance of one or more images of the set of potentially relevant images;

generating [Step 9] a new plurality of query vectors [adjusted Q] based at least in part on the feedback [See section 3.2];

generating [Step 9] a weighting of feature elements [updates the weights] based at least in part on the feedback [See section 3.1]; and

selecting [Steps 2-7 (after step 10)] a new set of potentially relevant images based at least in part on both the weighting of feature elements and distances between the new plurality of query vectors and the plurality of feature vectors [See step 10]" as claimed.

Referring to claim 8, RFT discloses the computer readable media as claimed. See the discussion regarding claim 1 above, as well as steps 4-6 of RFT's method in light of sections 3.1 and 3.2 for this disclosure. In particular, RFT's weight [W_i] for each of a plurality [i] of distances [$S(f_i)$] between a query vector and a corresponding feature

vector is calculated as claimed. That is, the claimed equation is equivalent to equations (6) – (8) in the RFT reference as derived for W_i.

Referring to claim 9, RFT discloses the computer readable media as claimed. See steps 8 & 9 of RFT's method for this disclosure. In particular, RFT teaches the computer readable media as recited in claim 1, as above, "wherein the receiving feedback [Step 8] comprises receiving feedback from a user ['the user marks it as highly relevant...' (see steps 8 and 9)]" as claimed.

Referring to claim 32, RFT discloses the image retrieval method as claimed. See the discussion of claim 1 above and the pertinent portions of the RFT reference for this disclosure. In particular, RFT teaches a method comprising:

"for one of a plurality of images [Objects O] and each of a plurality of features [f],

generating [Steps 2-3], based on a set of search criteria [Query Object Q], a query vector [Q's feature vector f (See Figure 2)] for the feature [one of features $f_1 – f_i$],

identifying a feature vector [f], corresponding to the image [O], for the feature [one of features $f_1 – f_i$], and

determining [Steps 4 & 5] how closely [$S(f_i)$] the feature vector matches the query vector; and

determining [Step 6] how closely the image [O] matches the set of search criteria [Q] based on how closely [S], for the plurality of features, the feature vectors match the query vectors, wherein generating the query vector comprises generating the query vector based at least in part on user relevance feedback regarding how relevant images

previously displayed to a user were [See Steps 8-10 and the discussion regarding claim 1 above]" as claimed.

Referring to claim 35, RFT discloses the method exactly as claimed. See the discussion regarding claims 1 & 32 above for the details of this disclosure. Initial search criteria for RFT's system comprises an image (Query Object Q : See section 2) as claimed.

Referring to claims 36 and 37, RFT discloses the method exactly as claimed. See the discussion regarding claims 1 & 32 above for the details of this disclosure. RFT's determining how closely the images match (Steps 4-6) performs exactly as claimed in claim 36, while the weighted (by weighting matrix W) summation is calculated based on user relevance feedback (See Steps 8-10 and Sections 3.1 – 3.2) as claimed in claim 37.

Claim 38 is rejected on the same basis as claim 32. See the discussions regarding claims 1 and 32 above for the details of this disclosure.

Claims 40-42 are rejected on the same basis as claim 32. See the discussions regarding claims 1 and 32 above for the details of this disclosure.

Claims 43 and 44 are rejected on the same basis as claims 36 and 37 respectively, in light of the basis for claim 40 above. See the discussions regarding claims 1, 32, 36-37 and 40 for the details of this disclosure.

Claims 48 and 49 are rejected on the same basis as claim 8 above. See the discussions regarding claims 1 and 8 for the details of this disclosure.

Claim 50 is rejected on the same basis as claim 1 above. See the discussion regarding claim 1 above, and Section 4 of the RFT reference for the details of this disclosure. In particular, RFT teaches "a system comprising: a client device [user computer]; a collection of a plurality of images [image database]; and an image server [MARS system], coupled to the client device and the collection of a plurality of images [accessible via the internet], the image server to receive image retrieval request from the client device and to...[perform the method as discussed with regard to claim 1 above]" as claimed.

Referring to claim 51, RFT discloses the computer readable media exactly as claimed. See step 8 of RFT's method and section 3.1 of the RFT reference regarding the relevance scores for this disclosure. In particular, RFT's "receiving feedback [Step 8] comprises receiving feedback in a range including at least Highly Relevant [(11) highly relevant], Relevant [(12) relevant], No Opinion [(13) no-opinion], Irrelevant [(14) non-relevant], and Highly Irrelevant [(15) highly non-relevant]" as claimed.

Claim 57 is rejected on the same basis as claim 8. See the discussions regarding claims 1 and 8 above for the details of this disclosure.

4. Claims 11-18, 46-47 and 60-66 are rejected under 35 U.S.C. 102(a) as being anticipated by the article entitled "MindReader: Querying Databases Through Multiple Examples" by Ishikawa et al. (hereinafter "MR")

Referring to claim 11, MR discloses a method of selecting between two types of matrixes as claimed. See section 3 on pages 220-221 for this disclosure. Refer

specifically to sections 3.2 - 3.4 and Appendix D for the details of this disclosure. In particular, MR teaches "a method of selecting [See section 3.4] between two types of matrixes [full covariance matrix OR Moore-Penrose inverse matrix] to be used to weight, based on relevance feedback, a plurality of feature elements for image retrieval [See sections 1-3], the method comprising:

selecting one of the two types of matrixes based on both a number of previously retrieved relevant images [N] and a length of a feature vector [n] including the plurality of feature elements ['the number of feedback points is less than the number of feature dimensions (N < n)']" as claimed.

Referring to claim 12, MR discloses the method as claimed. See sections 3.2 – 3.4 for this disclosure. MR's selecting one of the two types of matrixes is "based on both a number of previously retrieved potentially relevant images [N] which were identified by a user as being relevant [See Table 1 and section 3.2], and the length of the feature vector [n] including the plurality of feature elements [feature dimensions]" as claimed.

Referring to claim 13, MR discloses the method as claimed. See sections 3.2 – 3.4 for this disclosure. MR teaches the method as recited in claim 11, as above, "wherein the plurality of feature elements [feature dimensions] are all elements of the same feature [dimensions of the same feature]" as claimed.

Referring to claims 14 and 15, MR discloses the method as claimed. Again see sections 3.2 – 3.4 for this disclosure. MR's selecting comprises using a diagonal matrix [Moore-Penrose inverse matrix or pseudo-inverse matrix (See Theorem 3, section 3.4

and Appendix C – D)] if the number of retrieved relevant images [N] is less than the length [n] of the feature vector [N < n], and otherwise using a full matrix [M (derived from covariance matrix C)] as claimed.

Claims 16 and 17 are rejected on the same basis as claims 14 and 15 respectively, where MR's "threshold amount" is one.

Claim 18 is rejected on the same basis as claim 11. See the discussion regarding claim 11 above for the details of this disclosure.

Referring to claim 46, MR discloses a method of generating a query vector to compare to a feature vector of another image as claimed. See Section 3 of the MR reference for this disclosure, referring specifically to Theorem 1 and Table 1 for the details. In particular, MR teaches "a method of generating a query vector [q] to compare to a feature vector of another image, the method comprising:

receiving feedback [goodness values v] regarding the relevance of each image [example image] of a set of images [set of N examples];

wherein N represents...[See Table 1]; and

generating a query vector (q) corresponding to one of the plurality of features as follows...[See Theorem 1]" as claimed.

Claim 47 is rejected on the same basis as claim 46 above. See the discussion regarding claim 46 for the details of this disclosure.

Claims 60-62 are rejected on the same basis as claims 11-13 respectively. See the discussions regarding claims 11-13 above for the details of this disclosure.

Claim 63 is rejected on the same basis as claim 15. See the discussion regarding claim 15 above for the details of this disclosure.

Claims 64-66 are rejected on the same basis as claim 17. See the discussions regarding claims 16-17 above for the details of this disclosure.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over RFT in view of the article entitled "Water-Filling: A Novel Way for Image Structural Feature Extraction" by Zhou et al.

Referring to claim 10, RFT discloses the computer readable media as recited in claim 1, (see above) "wherein the low-level features include: a color moments feature," a texture feature, and a edge [shape] feature as claimed. See the discussion of equations (1) – (2) on the third page of the article for this disclosure.

RFT does not explicitly disclose that the texture feature includes "a wavelet based texture feature" and that the shape feature includes "a water-fill edge feature" as claimed. However, this is only because RFT is silent on specific examples for representations of texture and shape within this particular article. RFT does disclose that the low-level feature representations [R] can be any commonly used representation for a given feature f. Color histogram and color moments are used as examples of representations for the color feature.

Zhou teaches a system and method for CBIR using a water-fill edge feature and a wavelet based texture feature as claimed. See Sections 1-3 for the details of this disclosure.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Zhou's wavelet based texture feature as one of the representations for texture and Zhou's water-fill edge feature as one of the representations for shape within RFT's system. One would have been motivated to do so because these common representations of the art in the low-level image features of texture and shape would have provided reliable representations of these features, as described by Zhou in the Introduction section.

6. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over RFT in view of U.S. Patent No. 6,504,571 to Narayanaswami et al.

Referring to claim 52, RFT does not explicitly disclose that the receiving feedback comprises receiving feedback via speech recognition as claimed. This however, is only because RFT is silent on the computerized means for specifying the user feedback.

Narayanaswami discloses a system and method similar to that of RFT, wherein query input (feedback) is received via speech recognition as claimed. See Figure 2 and the corresponding portion of Narayanaswami's specification, specifically column 8, lines 22-39, for the details of this disclosure.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Narayanaswami's speech recognition unit (204) to RFT's system and accordingly configure RFT's system to accept the relevance feedback via Narayanaswami's speech recognition unit to obtain the invention as claimed. One would have been motivated to do so in order to provide the users of RFT's system with a convenient feedback means that was commonly used in the art, and further to provide an interface to RFT's system usable by persons with typing or writing challenges.

7. Claims 2-7, 19-30, 33-34, 53-56 and 58-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over RFT in view of MR.

Referring to claim 2, RFT discloses the computer readable media as recited in claim 1, (see above) "wherein the selecting a new set of potentially relevant images [Steps 2-7 (after step 10)] comprises using a matrix [W] in determining the distance between one of the new plurality of query vectors and one of the plurality of feature vectors" as claimed.

RFT does not explicitly disclose "dynamically selecting the matrix..." as claimed.

MR does disclose "dynamically selecting the matrix [M in this case] based on both a number of images [N] in the set of potentially relevant images for which relevance feedback was input and a number [n] of feature elements in the one feature vector" as claimed. See the discussion regarding claim 11 above.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add MR's functionality of dynamically selecting the weighting

matrix to the system and method of RFT to obtain the invention as claimed. One would have been motivated to do so in order to avoid the problem of a singular and non-invertible covariance matrix, as disclosed by MR. One would have been further motivated to combine the teachings of MR and RFT because MR explicitly builds off of the MARS system [MR: See sections 2 – 3], which is the system described in the RFT reference [RFT: See the first paragraph of section 4]. Thus, the MR reference directly suggests this combination.

Referring to claim 3, the system and method of RFT in view of MR as applied to claim 2 above discloses the invention as claimed. In particular, MR (as added to RFT) teaches the dynamically selecting exactly as claimed. See the discussions of claims 14 and 15 above for the details of this disclosure.

Referring to claim 4, the system and method of RFT in view of MR as applied to claim 2 above discloses the invention as claimed. In particular, MR (as added to RFT) teaches the dynamically selecting comprising:

"if the number of images [N] in the set of potentially relevant images for which relevance feedback was input is not less than [N >= n] the number of feature elements in the one feature vector [n], then using one matrix [covariance matrix C] that transforms the query vector and the one feature vector to a higher-level feature space and then using another matrix [M] that assigns a weight to each element of the transformed query vector and the transformed feature vector; and

if the number of images [N] in the set of potentially relevant images is less than [N < n] the number of feature elements in the one feature vector [n], then using a matrix

[Moore-Penrose inverse matrix or pseudo-inverse matrix] that assigns a weight to each element of the query vector and then one feature vector [See Appendix D]" as claimed.

Referring to claim 5, the system and method of RFT in view of MR as applied to claim 2 above discloses the invention as claimed. See Theorem 2 on page 221 of the MR reference for the details of this disclosure. MR's dynamic matrix weighting, as added to the system and method of RFT, discloses the generation of the matrix W* [M in the MR reference] as claimed.

Referring to claim 6, the system and method of RFT in view of MR as applied to claim 2 above discloses the invention as claimed. See Theorem 3 on page 221 of the MR reference for the details of this disclosure. MR's dynamic matrix weighting, as added to the system and method of RFT, discloses the generation of the diagonal matrix elements w_{kk} [m_{jj} in the MR reference] as claimed.

Referring to claim 7, RFT does not explicitly disclose the details of the generation of a new query vector as claimed because RFT is silent on these details. However, MR does disclose the generation of new query vectors exactly as claimed. See Theorem 1 on page 221 of the MR reference for the details of this disclosure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate MR's method of generating the new query vectors into the system and method of RFT. One would have been motivated to do so for the same reasons as discussed above with regard to claim 2.

Claims 19 and 20 are rejected on the same basis as claim 2. See the discussions regarding claims 1 and 2 above for the details of this disclosure.

Claims 21 and 22 are rejected on the same basis as claims 14 and 15 respectively, in light of the basis for claim 19. See the discussions regarding claims 1, 2 and 14-15 above for the details of this disclosure.

Claims 23, 24 and 29-30 are rejected on the same basis as claim 4. See the discussions regarding claims 1, 2 and 4 above for the details of this disclosure.

Referring to claim 25, the system and method of RFT in view of MR as applied to claim 2 above discloses the invention as claimed. See the discussions regarding claims 1, 2 and 4 for this disclosure. In particular, MR's dynamic matrix weighting, as added to the system and method of RFT, discloses the determination of the distance as claimed. See equation (4) on page 221 of the MR reference for this disclosure. MR's equation (4) is equivalent to the claimed equation.

Referring to claim 26, the system and method of RFT in view of MR as applied to claim 2 above discloses the invention as claimed. See the discussions regarding claims 1, 2 and 4 for this disclosure. In particular, MR's dynamic matrix weighting, as added to the system and method of RFT, discloses the determination of the distance as claimed. See equation (4) on page 221 of the MR reference in light of the disclosure of section 3.4 and Appendix D. MR's equation (4), as modified by Appendix D in the case where $N < n$, is equivalent to the claimed equation.

Referring to claims 27 and 28, the system and method of RFT in view of MR as applied to claim 2 above discloses the invention as claimed. See the discussions regarding claims 1, 2 and 4 for this disclosure. In particular, the method of RFT (as

modified by MR) is repeated for each of the plurality of features as claimed. See Steps 4 - 6 of RFT's method for this disclosure.

Claims 33-34 are rejected on the same basis as claim 4, in light of the basis for claim 32 above. See the discussions regarding claims 1, 2, 4 and 32 above for the details of this disclosure.

Claims 53 and 54 are rejected on the same basis as claims 51 and 52 respectively, in light of the basis for claim 19. See the discussions regarding claims 1, 19 and 51-52 above for the details of this disclosure.

Claim 55 is rejected on the same basis as claims 7 and 51 above. See the discussions regarding claims 1, 7 and 51 above for the details of this disclosure.

Claim 56 is rejected on the same basis as claim 52 above, in light of the basis for claim 55. See the discussions regarding claims 1, 7 and 51-52 above for the details of this disclosure.

Claim 58 is rejected on the same basis as claim 3, in light of the basis for claim 57. See the discussions regarding claims 1-3, 8 and 57 above for the details of this disclosure.

Claim 59 is rejected on the same basis as claim 4, in light of the basis for claim 57. See the discussions regarding claims 1-2, 4, 8 and 57 above for the details of this disclosure.

Response to Arguments

8. Applicant's arguments filed 05 September 2003 have been fully considered but they are not persuasive.

Referring to applicant's remarks on pages 30-32 regarding the Section 102 rejection of claim 1: Applicant argued that RFT does not teach or disclose any computer readable media having stored thereon a plurality of instructions...because RFT is silent with respect to implementation of any of the ideas described by RFT.

The examiner disagrees for the following reasons: First, a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Second, RFT does describe implementation of the ideas described in RFT. See section 4, Experimental Results, as cited in the rejection of claim 1 for the details of this disclosure. Specifically, RFT does teach a computer readable media [MARS architecture] having stored thereon a plurality of instructions [MARS web pages]...as claimed.

Referring to applicant's remarks on pages 33-34 regarding the Section 102 rejection of claim 1: Applicant argued that RFT does not teach "generating a plurality of query vectors by extracting, for each query vector, one of a plurality of low-level features from the initial image selection" as recited in claim 1.

The examiner disagrees for the following reasons: As shown in Figure 2 and discussed in the corresponding portion of the reference, RFT's query vectors (f) are generated by extracting [See flow of bottom half of Fig. 2] one of a plurality of low-level features (r) from the initial image selection (Q), for each query vector (f) as claimed. The examiner notes that this particular limitation does not include any 'modification' of a query vector and has nothing to do with relevance feedback, rendering the basis for applicant's arguments moot anyway.

Referring to applicant's remarks on page 34 regarding the Section 102 rejection of claim 1: Applicant argued that RFT does not and cannot teach "generating a new plurality of query vectors based at least in part on the feedback" as recited in claim 1 because RFT's user feedback is solely reflected in the weights.

The examiner disagrees for the following reasons: RFT's weights (w) are part of the query vectors (f) as shown throughout section 3 and specifically in Figure 2 (also see Step 3). Thus, when the weights are updated according to the relevance feedback in Step 9, a new plurality of query vectors (f) are inherently generated because the weights are part of the query vectors. In other words, when the weight (w_{ij}) is updated, so to is the query vector (f), and updating of the query vectors IS generating new query vectors (See Step 10) as claimed. One cannot update the weights without updating (and thus generating anew) the query vectors.

Applicant's arguments on pages 34-36 with respect to claim 8 are not considered persuasive for the same reasons as discussed above with regard to claim 1. Applicant rehashes the same arguments with respect to this claim.

Referring to applicant's remarks on pages 36-37 regarding the Section 102 rejection of claim 48: Applicant argued that RFT does not teach the equation for generating a weight (u_i) because RFT's weights (W_{ij}) are formed using linear techniques.

The examiner disagrees for the following reasons: RFT's weights (W_{ij}) are not, and were not (See grounds of rejection above, repeated from previous Office action) considered equivalent to the claimed u_i. Instead, it is RFT's weight (w_i) that is considered equivalent to applicant's claimed u_i. As stated in the ground of rejection repeated above, deriving RFT's equations (6) – (8) for w_i results in the claimed equation. Thus, RFT does teach the method of generating a weight as claimed.

Referring to applicant's remarks on page 37 regarding the Section 102 rejection of claim 32: Applicant argued that RFT discloses the calculation of an overall similarity while the claimed process reflects a hierarchical approach to determining how closely two images match.

The examiner maintains that RFT's similarity determination is equivalent to the 'hierarchical approach' argued by applicant. Specifically, RFT determines (Steps 4-5) individual distances ($S(f_i)$) between the feature vectors and the query vectors, and then these individual distances are combined (Step 6).

Applicant rehashes arguments previously presented on pages 37-40. These arguments are not considered persuasive for the same reasons as stated previously.

Referring to applicant's remarks on pages 40-42 regarding the Section 102 rejection of claim 11: Applicant argued that MR provides no teaching or disclosure of "a

plurality of feature elements for image retrieval" or "selecting between two types of matrixes to be used to weight" as claimed.

The examiner disagrees for the following reasons: MR teaches a plurality of feature elements for image retrieval explicitly as a query vector (q) and a feature vector (x). See sections 2 and 3.2 for this disclosure. Furthermore, MR teaches selecting between two types of matrixes [M of equation 7 OR the Moore-Penrose inverse matrix of equation 9] to be used to weight as claimed. See Theorems 2-3, section 3.4 and Appendices C-D for this disclosure. Applicant's statement that MR teaches selection between three types of matrixes is false. Specifically, the covariance matrix (C) is the basis of the selection decision (if C is invertible or singular/non-invertible), but it is not one of the types of matrixes "used to weight" as claimed.

Applicant contradicts applicant's own arguments regarding claims 12 and 13 in the arguments regarding claims 16 and 17.

Applicant rehashes a similar argument as that of claim 1 in regard to claim 18. The examiner disagrees for the same reasons as above, and further because MR does teach the computer readable media in Sections 1, 2 and 5.

Applicant's arguments regarding claim 46 completely overlook the portions of MR cited by the examiner in the corresponding grounds of rejection. Applicant must take into consideration the reference as a whole.

Referring to applicant's remarks on pages 47-50 regarding the Section 103 rejections of claims 10 and 52: Applicant argued that the rejection is based on facts

within the personal knowledge of an employee of the Office, and the reference must be supported, when called for by the applicant, by the affidavit of such employee.

The examiner disagrees for the following reasons: The rejection was based on facts given via Official notice, not on the personal knowledge of the Examiner. Applicant appears to be unfamiliar with the practice of Official notice, and is therefore directed to MPEP § 2144.03. Since applicant appears to be challenging the facts on Official notice, the examiner notes that applicant's traversal is inadequate because no statement is given as to why the noticed fact is not considered to be common knowledge or well-known in the art. This is therefore considered to be an admission of prior art. However, due to applicant's attempted challenge of Official notice, the examiner uses the article entitled "Water-Filling: A Novel Way for Image Structural Feature Extraction" by Zhou et al. submitted in an earlier IDS by applicant as evidence for the noticed fact in the rejection of claim 10, and submits U.S. Patent No. 6,504,571 to Narayanaswami et al. as evidence for the noticed fact in the rejection of claim 52.

Referring to applicant's remarks on pages 50-61 regarding the remaining Section 103 rejections: Applicant rehashes the same arguments as presented with regard to the Section 102 rejections of corresponding claims above, and further adds that there is no motivation or suggestion to combine the references.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, suggestion and motivation come from the references themselves, as stated in the previous grounds of rejection and repeated above. The examiner notes that applicant's reasoning for this argument in the first paragraph of page 52 is entirely speculative. It does not logically and necessarily follow that the problem and motivation are absent from RFT because RFT didn't develop and adopt such techniques itself. Furthermore, applicant's statements in the last full paragraph of page 52 are contradictory. Specifically, MR's statement on page 220 that the technique proposed by MR includes the query refinement technique of MARS as a special case but presents significant advantages is motivation to combine in and of itself because it shows that MR's technology is applicable to RFT's and that it is advantageous to do so.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Goddard whose telephone number is 703-305-7821. The examiner can normally be reached on M-F, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 703-308-1436. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 for all communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

bdg
December 17, 2003

SAFET METJAHIC
SUPERVISORY PATENT EXAMINER
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